WHAT IS CLAIMED IS:

1. A method for testing the visual field of a patient to determine an extent of at least one scotoma, comprising:

measuring the visual perception of the patient by generating test images at a multiplicity of predetermined points on a visual field display viewed by the patient and recording the patient's responses to the test images to produce a set of raw data; and

automatically analyzing said set of raw data to determine a closed curve generally separating points corresponding to unseen test images and points corresponding to seen test images, the analyzing of said raw data to determine said closed curve including:

estimating a size and a shape of an area containing only points corresponding to unseen test images;

based on the size and shape estimates, selecting a series of spaced points along a boundary of said area; and

for each of said spaced points, more precisely determining the boundary of said area by automatically testing additional points located between points corresponding to unseen test images and points corresponding to seen test images.

2. The method defined in claim 1 wherein the more precise determining of said boundary includes selecting at least some of said additional points in dependence on the patient's responses to the testing of others of said additional points.

3. The method defined in claim 2 wherein the selecting of said additional points is executed automatically by a programmed computer.

4. The method defined in claim 1 wherein the more precise determining of said boundary includes measuring the visual perception of the patient at said additional points in the patient's visual field by generating respective test images at said additional points on said visual field display and recording the patient's responses to the respective test images to produce additional data pertaining to the visual field of the patient.

5. The method defined in claim 1 wherein said spaced points all correspond to test images unseen by the patient and wherein the more precise determining of said boundary includes for each selected one of said spaced points:

(i) selecting a first additional point located between the respective selected spaced point and another tested point located outside said area;

(ii) generating a first additional test image at said first additional point;

(iii) recording the patient's response to said additional test image;

(iv) selecting a second additional point located closer than said first additional point to said area where said additional test image is seen by the patient and farther from said area where said additional test image is unseen by the patient; and

(v) continuing to select additional points for testing until two successively tested additional points test differently.

6. The method defined in claim 1 wherein said spaced points are taken from a group consisting of (a) the set of outermost unseen test points and (b) the set of innermost seen test points.

7. An apparatus for testing the visual field of a patient for scotomas, comprising:

two display members located on opposite sides of a plane of symmetry extending through the patient's head;

a computer operatively connected to said display members for generating binocularly displaced images of a common fixation object on said display members;

at least two mirrors inclined at different angles with respect to one another for directing light rays from respective ones of said display members to respective ones of the patient's eyes, each of said mirrors being disposed along an optical axis of a respective eye of the patient, at least one of said mirrors being a beam splitting mirror;

a projection screen located on a side of said beam splitting mirror opposite the patient; and

a projector for projecting a test image onto said screen, said computer being operatively connected to said projector for controlling the generation of test images on said screen.

8. The apparatus defined in claim 7 wherein said computer is programmed to:

measure the visual perception of the patient by operating said projector to project test images onto said screen at a multiplicity of predetermined points;

record the patient's responses to the test images to produce a set of raw data;

automatically analyze said set of raw data to determine a closed curve generally separating points corresponding to unseen test images and points corresponding to seen test images;

define a series of spaced points along said curve; and

for each of said spaced points, more precisely determine a boundary between points corresponding to unseen test images and points corresponding to seen test images, by automatically testing additional points in a region located about said curve and between points corresponding to unseen test images and points corresponding to seen test images.

9. The apparatus defined in claim 8 wherein said computer is further programmed to select at least some of said additional points in dependence on the patient's responses to the testing of others of said additional points.

10. The apparatus defined in claim 7 wherein said display members are LCD display screens.

11. The apparatus defined in claim 7 wherein said display members substantially face one another.

12. The apparatus defined in claim 7 wherein said computer is programmed to generate a series of differentially displaced binocular images of said common object on said display members, so that said object is a three-dimensional moving object.

13. A method for testing the visual field of a patient, comprising:

generating on a test display area a series of test images at different points of the patient's visual field;

recording the patient's responses to said test images; and

during the generating of said test images, generating, on a pair of spaced display areas, two binocularly displaced images of a fixation object so that said fixation object appears to the patient to be three dimensional and in motion.

14. The method defined in claim 13 wherein said fixation object is taken from the group consisting of a geometric form and an animated figure.

15. The method defined in claim 13 wherein the generating of said binocularly displaced images includes operating a computer to energize a pair of display members.

16. The method defined in claim 14 wherein said display members are located on opposite sides of a sagittal plane through the patient.

17. A method for testing the visual field of a patient, comprising: 4

presenting stereoscopic or binocularly displaced fixation images to the respective eyes of the patient;

producing a series of test images viewable by only one of the patient's eyes; and

operating a computer to generate said fixation images and said test images.

18. The method defined in claim 17 wherein the presenting of said fixation images includes energizing two separate electronic displays.

19. The method defined in claim 18 wherein the producing of said test images includes producing images on a third display member different from said electronic displays.

20. The method defined in claim 18 wherein said displays are LCD panels.

21. The method defined in claim 17, further comprising operating said computer to:

record the patient's responses to the test images to produce a set of raw data; and

automatically analyze said set of raw data to determine a closed curve generally separating points corresponding to unseen test images and points corresponding to seen test images.

22. The method defined in claim 21 wherein the operating of said computer to automatically determine said closed curve includes executing a computer routine or program to:

estimate a size and a shape of an area containing only points corresponding to unseen test images;

based on the size and shape estimates, select a series of spaced points along a boundary of said area; and

for each of said spaced points, more precisely determine the boundary of said area by automatically testing additional points located between points corresponding to unseen test images and points corresponding to seen test images.

23. The method defined in claim 22 wherein the operating of said computer to more precisely determine said boundary includes operating said computer to automatically select at least some of said additional points in dependence on the patient's responses to the testing of others of said additional points.

24. The method defined in claim 17 wherein the presenting of said stereoscopic or binocularly displaced fixation images to the patient includes generating said stereoscopic or binocularly displaced fixation images on a pair of spaced display areas during the generating of said test images so that said fixation object appears to the patient to be three dimensional and in motion.

25. A method of measuring movement of a pupil of an eye, comprising:

(i) recording an initial picture of the eye with the pupil unobscured;

(ii) generating an array of variables describing tangents to a curve of the pupil at regular space intervals;

(iii) continually recording pictures of the eye being monitored;

(iv) locating any portion of the pupil visible between eyelids of the eye;

(iv) calculating a slope of left and right edges of the visible portion of the pupil; and

(v) calculating a center of the pupil in the continuously recorded pictures using correspondence of the slope to the tangents in said array of variables as well as the distance

between said left and right edges to correct for any enlargement or shrinking of the pupil from the initial picture.

26. A method for testing the visual field of a patient, comprising:
presenting a fixation image to at least one eye of a patient;
producing a series of test images viewable by said eye; and
operating a computer to generate said fixation image and said test images,
the presenting of said fixation image and the producing of said test images including the projection of video images from video displays onto at least one screen.

27. A method for testing the visual field of a patient, comprising:
presenting a fixation image to an eye of a patient; and
producing a series of test images to the patient;
wherein said fixation image is substantially brighter than said test images.

28. The method defined in claim 27 wherein said test images are produced on display, the presenting of said fixation image including energizing a light source separate from said display.

29. The method defined in claim 28 wherein said display includes a projection screen and said light source is a laser.

30. The method defined in claim 28, further comprising moving said light source between said display and said eye.

31. The method defined in claim 27 wherein said test images are produced so as to be viewable said eye.

32. The method defined in claim 27 wherein said eye is an eye under test, said test images being produced said as to be viewable only by an eye of the patient other than said eye under test.

33. A method for testing the visual field of a patient, comprising:

measuring the visual perception of the patient by generating test images at a multiplicity of predetermined points on a visual field display viewed by the patient and recording the patient's responses to the test images to produce a set of raw data; and

automatically analyzing said set of raw data to define an area of the patient's eye containing solely points corresponding to unseen test images, the analyzing of said raw data to determine said area including testing other points in the visual field of the patient, said other points being selected depending on the patient's prior response to test images.